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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/568,428

02/14/2006

Taishi Shigematsu

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08/04/2008

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EXAMINER

HEINCER, LIAM J

ART UNIT

PAPER NUMBER

1796

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/568,428	Applicant(s) SHIGEMATSU ET AL.	
	Examiner Liam J. Heincer	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/2006 and 4/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-9, 12-24 and 27-35 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for polyhydric alcohols with at least three hydroxyl group, one of which is a secondary hydroxyl group, does not reasonably provide enablement for *any* polyhydric alcohol. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make or use the invention commensurate in scope with these claims.

The claimed invention would require undue experimentation in determining how to practice and use the invention. It is believed that undue experimentation would be required because:

- (a) The quantity of experimentation necessary is great since the claims read on any polyhydric alcohol, such as ethylene glycol.
- (b) There is no direction or guidance for preparing the polymer using a polyhydric alcohol without a secondary hydroxyl group and three total hydroxyl groups.
- (c) There is an absence of working examples concerning using any polyhydric alcohol.

In light of the above factors, it is seen that undue experimentation would be necessary to make and use the invention of the claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 6-11, 13, and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Seiden et al. (GB 1458570) when taken with Applicant's admission (pg. 11, original specification).

Considering Claims 1-3, 8-11: Seiden et al. teaches a method comprising polymerizing glycerin/a polyhydric alcohol in the presence of sulfuric acid/an oxidation and dehydration catalyst (2:23-46). While Seiden et al. does not disclose the formation of ketone groups, sulfuric acid will necessarily provide ketone groups in the polymer as evidenced by the disclosure presented in the original specification (page 11).

Considering Claims 6 and 7: Applicant has failed to define the conditions where the volatility of the catalyst is judged. As sulfuric acid can be both volatile or nonvolatile depending on the conditions, the claim limitations are determined to be taught.

Considering Claim 13: Seiden et al. teaches heating the mixture (2:23-27).

Considering Claim 15: Seiden et al. teaches the polymer as having residual hydroxyl groups, as they can be esterified with acids (3:19-122).

Claims 16-18, 21-26, and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Seiden et al. (GB 1458570) when taken with Applicant's admission (pg. 11, original specification).

Considering Claims 16-18, 23-26: Seiden et al. teaches a method comprising polymerizing glycerin/a polyhydric alcohol in the presence of sulfuric acid/an oxidation and dehydration catalyst (2:23-46). While Seiden et al. does not disclose the formation of ketone groups, sulfuric acid will necessarily provide ketone groups in the polymer as evidenced by the disclosure presented in the original specification (page 11).

Considering Claims 21 and 22: Applicant has failed to define the conditions where the volatility of the catalyst is judged. As sulfuric acid can be both volatile or nonvolatile depending on the conditions, the claim limitations are determined to be taught.

Considering Claim 28: Seiden et al. teaches heating the mixture (2:23-27).

Claims 1-9, 12, 13, and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Muller (US Pat. 3,849,515).

Considering Claim 1-4, 8, and 9: Muller teaches a method comprising polymerizing a polyether polyol in the presence of sulfuric acid (Example 1).

Considering Claim 5: Muller teaches using a concentrated/aqueous sulfuric acid (example 1).

Considering Claims 6 and 7: Applicant has failed to define the conditions where the volatility of the catalyst is judged. As sulfuric acid can be volatile or nonvolatile depending on the conditions, the claim limitations are determined to be taught.

Considering Claim 12: Muller teaches a diol being present in the composition (1:59-65).

Considering Claim 13: Muller teaches heating the composition during polymerization (Example 1).

Considering Claim 15: Muller teaches the polymer as having hydroxyl groups (1:45).

Claims 16-24, 27, and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Muller (US Pat. 3,849,515).

Considering Claim 16-19, 23, and 24: Muller teaches a method comprising polymerizing a polyether polyol in the presence of sulfuric acid (Example 1).

Considering Claim 20: Muller teaches using a concentrated/aqueous sulfuric acid (example 1).

Considering Claims 21 and 22: Applicant has failed to define the conditions where the volatility of the catalyst is judged. As sulfuric acid can be volatile or nonvolatile depending on the conditions, the claim limitations are determined to be taught.

Considering Claim 27: Muller teaches a diol being present in the composition (1:59-65).

Considering Claim 28: Muller teaches heating the composition during polymerization (Example 1).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 30-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muller (US Pat. 3,849,515) as applied to claim 16 above, and further in view of Narayan et al. (US 2003/0213939).

Muller teaches the method of claim 16 as shown above.

Considering Claim 30: Muller also teaches the polymer as having hydroxyl groups (1:45).

Muller does not teach applying the polymer to a substrate, then curing the composition. However, Narayan et al. teaches applying a substance containing an active hydrogen polyether polyol (¶0043) to a substrate, then curing/heating and hardening the composition to form an elastomer/gel (¶0053). Muller and Narayan et al. are analogous art as they are concerned with the same field of endeavor, namely urethane foams made from polyether polyols. It would have been obvious to a person having ordinary skill in the art at the time of invention to have applied the polymer to a substrate to form a gel as in Narayan et al. in the process of Muller, and the motivation to do so would have been, as Narayan et al. suggests, to form an electrically conductive article (¶0007).

Considering Claims 31-35: Muller does not teach adding a conductive filler during the process. However, Narayan et al. teaches adding a carbon nanotube modified with carboxylic acid groups (¶0013) or a metal particle (¶0021) to a polyether polyol

composition (§0037). Muller and Narayan et al. are analogous art as they are concerned with the same field of endeavor, namely urethane foams made from polyether polyols. It would have been obvious to a person having ordinary skill in the art at the time of invention to have added the conductive filler of Narayan et al. to the polyetherpolyol of Muller, and the motivation to do so would have been, as Narayan et al. suggests, it will provide a foam that is electrically conductive (§0007).

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO Form 892.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Liam J. Heincer whose telephone number is 571-270-3297. The examiner can normally be reached on Monday thru Friday 7:30 to 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on 571-272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Eashoo, Ph.D./
Supervisory Patent Examiner, Art Unit 1796
1-Aug-08

LJH
July 28, 2008